

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

What is claimed is:

- 1 1. (Currently Amended) A computer-implemented method for accessing an instance of
 2 a recreatable object in a shorter-duration memory based on a reference to the instance
 3 of the recreatable object located in a longer-duration memory, wherein the shorter-
 4 duration memory is associated with a call, the method comprising the steps of:
 5 locating, within the shorter-duration memory, a context structure ~~associated with the~~
 6 call, wherein at least a portion of the context structure is passed as an
 7 argument to the call;
 8 locating an XREF pointers array based on data cached within the context structure,
 9 wherein the data cached within the context structure includes a reference
 10 to the XREF pointers array;
 11 determining whether the XREF pointers array includes a pointer associated with said
 12 reference to the instance of the recreatable object; and
 13 if the XREF pointers array includes a pointer associated with said reference to the
 14 instance of the recreatable object, then following said pointer to locate said
 15 instance within said shorter-duration memory.

- 1 2. (Currently amended) The method of Claim 1 wherein the step of locating an XREF
 2 pointers array based on data cached within the context structure comprises the steps
 3 of:

4 determining a hash code associated with a memory page in which the reference to the
 5 instance of the recreatable object located in the longer-duration memory is
 6 located;
 7 using at least a portion of the hash code as an index to locate an array entry within an
 8 array stored within the context structure; and
 9 if said array entry contains a pointer, then following said pointer stored in said array
 10 entry to locate said XREF pointers array.

1

1 3. (Original) The method of Claim 2 wherein:
 2 the array is a power-of-two array; and
 3 the portion of said hash code that is used as said index includes a particular number of
 4 bits of said hash code.

1

1 4. (Currently amended) The method of Claim 1 wherein, the XREF pointers array does
 2 not include a pointer associated with said reference to the instance of the
 3 recreatable object, ~~and the~~ computer-implemented method further comprisinges
 4 the steps of:
 5 creating said instance of the recreatable object by activating said recreatable object;
 6 and
 7 storing a pointer to said instance of the recreatable object in said XREF pointers
 8 array.

1

1 5. (Currently amended) The method of Claim 2 wherein, if said array entry does not
 2 contain a pointer, ~~then~~

3 creating said instance of the recreatable object by activating said recreatable object;
4 and
5 storing a pointer to said instance of the recreatable object in said array entry.

1
1 6. (Previously Presented) A computer implemented method for accessing an instance of
2 a recreatable object in shorter-duration memory based on a reference located in a
3 longer-duration memory, wherein the shorter-duration memory is associated with a
4 call, the method comprising the steps of:
5 when a class is activated, generating, within said shorter-duration memory, a class
6 object associated with the class;
7 storing, within said class object, data for locating instances of recreatable objects
8 associated with said class, wherein said data includes a pointer to an XREF
9 pointers array;
10 to dereference said reference located in a longer-duration memory, performing the
11 steps of:
12 determining that said reference located in a longer-duration memory is
13 associated with said class; and
14 using said data within said class object to locate said instance of said
15 recreatable object.

1
1 7. (Canceled).

1
1 8. (Currently amended) The method of Claim 6 wherein the step of using said data
2 within object to locate said instance includes the steps of:

3 determining whether the XREF pointers array includes a pointer associated with said
4 reference; **and**
5 if the XREF pointers array includes a pointer associated with said reference, then
6 following said pointer to locate said instance within said shorter-duration
7 memory.

1

1 9. (Original) The method of Claim 8 wherein:
2 the XREF pointers array does not include a pointer associated with said reference; and
3 the method further comprises the steps of
4 creating said instance by activating said recreatable object; and
5 storing a pointer to said instance in said XREF pointers array.

1

1 10. (Currently amended) A computer-readable medium carrying instructions for
2 accessing an instance of a recreatable object in a shorter-duration memory based on a
3 reference **to the instance of the recreatable object** located in a longer-duration
4 memory, wherein the shorter-duration memory is associated with a call, the computer-
5 readable medium comprising instructions for performing the steps of:
6 locating, within the shorter-duration memory, a context structure ~~associated with the~~
7 **call, wherein at least a portion of the context structure is passed as an**
8 **argument to the call;**
9 locating an XREF pointers array based on data cached within the context structure,
10 **wherein the data cached within the context structure includes a reference**
11 **to the XREF pointers array;**

12 determining whether the XREF pointers array includes a pointer associated with said
 13 reference to the instance of the recreatable object; and
 14 if the XREF pointers array includes a pointer associated with said reference to the
 15 instance of the recreatable object, then following said pointer to locate said
 16 instance within said shorter-duration memory.

1

1 11. (Previously Presented) The computer-readable medium of Claim 10 wherein the step
 2 of locating an XREF pointers array based on data cached within the context structure
 3 comprises the steps of:
 4 determining a hash code associated with a memory page in which the reference to the
 5 instance of the recreatable object located in the longer-duration memory is
 6 located;
 7 using at least a portion of the hash code as an index to locate an array entry within an
 8 array stored within the context structure; and
 9 if said array entry contains a pointer, then following said pointer stored in said array
 10 entry to locate said XREF pointers array.

1

1 12. (Original) The computer-readable medium of Claim 11 wherein:
 2 the array is a power-of-two array; and
 3 the portion of said hash code that is used as said index includes a particular number of
 4 bits of said hash code.

1

1 13. (Currently amended) The computer-readable medium of Claim 10 wherein: if the
 2 XREF pointers array does not include a pointer associated with said reference to the

3 **instance of the recreatable object**, and, the computer-readable medium further
 4 comprises instructions for performing the steps of:
 5 creating said instance **of the recreatable object** by activating said recreatable object;
 6 and
 7 storing a pointer to said instance **of the recreatable object** in said XREF pointers
 8 array.

1

1 14. (Currently amended) The computer-readable medium of Claim 11 further comprising
 2 instructions for performing the steps of:
 3 if said array entry does not contain a pointer, then creating said instance **of the**
 4 **recreatable object** by activating said recreatable object; and
 5 storing a pointer to said instance **of the recreatable object** in said array entry.

1

1 15. (Previously Presented) A computer-readable medium carrying instructions for
 2 accessing an instance of a recreatable object in shorter-duration memory based on a
 3 reference located in a longer-duration memory, wherein the shorter-duration memory
 4 is associated with a call, the computer-readable medium comprising instructions for
 5 performing the steps of:
 6 when a class is activated, generating, within said shorter-duration memory, a class
 7 object associated with the class;
 8 storing, within said class object, data for locating instances of recreatable objects
 9 associated with said class, wherein said data includes a pointer to an XREF
 10 pointers array;

11 to dereference said reference located in the longer-duration memory, performing the
12 steps of:
13 determining that said reference located in the longer-duration memory is
14 associated with said class; and
15 using said data within said class object to locate said instance of said
16 recreatable object.

1
1 16. (Canceled).

1 17. (Currently amended) The computer-readable medium of Claim 15 wherein the step
2 of using said data within object to locate said instance includes the steps of:
3 determining whether the XREF pointers array includes a pointer associated with said
4 reference; **and**
5 if the XREF pointers array includes a pointer associated with said reference, then
6 following said pointer to locate said instance within said shorter-duration
7 memory.

1
1 18. (Original) The computer-readable medium of Claim 17 wherein:
2 the XREF pointers array does not include a pointer associated with said reference; and
3 the computer-readable medium further comprises instructions for performing the
4 steps of:
5 creating said instance by activating said recreatable object; and
6 storing a pointer to said instance in said XREF pointers array

1 19. (Previously Presented) The method of Claim 1 wherein the duration of the
2 shorter-duration memory is shorter than the duration of the longer-duration
3 memory

1

1 20. (Previously Presented) The computer-readable medium of claim 10
2 wherein the duration of the shorter-duration memory is shorter than the
3 duration of the longer-duration memory.